

## CLAIMS

1. A communications system, comprising:

an optical fiber configured to transmit light modulated according to data; and

a receiving means for receiving light leaked from the side of the optical fiber so

5 as to acquire data,

wherein the optical fiber is a GI-type optical fiber having a core structured such that the refractive index at the center of the core is large, gradually decreasing according to positions from the center to the periphery.

10 2. The communications system according to Claim 1, wherein the optical fiber has scatterers mixed therein.

3. The communications system according to Claim 1, wherein leakage light intensity and transmission distance are adjusted according to a relationship between refractive 15 indices at a central part of the optical fiber and at peripheral parts thereof.

4. The communications system according to any one of Claim 1 through Claim 3, wherein the receiving means is provided in a mobile body, and the optical fiber does not move.

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5. The communications system according to any one of Claim 1 through Claim 3, wherein the optical fiber is provided in a mobile body, and the receiving means does not move.

25 6. A leaky optical fiber having a core structured such that the refractive index at the center of the core is large, gradually decreasing according to positions from the center to the periphery, and that scatterers are mixed in the core.